

# Energy Cooperation Potential within the Framework of the Mongolia–Japan Economic Partnership Agreement (EPA)

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## 1. Introduction

In the era of globalization, along with the simultaneous emergence of traditional and non-traditional factors that affect a country's security, not only military and political, but economic, social and energy issues began to impact relationships between countries. Due to the political and security situation in the Northeast Asian region, formation of multilateral mechanisms and economic integration processes in the region are slower than those in other regions, such as Southeast Asia. However, this region has big potential for cooperation, as it has an enormous amount of natural and energy resources on the one hand, and very powerful countries and economies to use those resources on the other. One example is energy cooperation between Mongolia and Japan. This paper investigates Mongolia–Japan energy cooperation, especially cooperation opportunities in the coal industry.

## 2. The Natural Resources and Coal Deposits of Mongolia

After passage of the Mineral Resources Law of Mongolia, which was approved in 1997 and revised in 2006, participation of the private sector in geological research and exploration for mineral resources has been intensified, resulting in the discovery of many large-scale deposits, such as the Oyu Tolgoi copper and gold deposit, the Zuunmod molybdenum deposit, the Mandal molybdenum and tungsten deposit and Ovoot Tolgoi coal deposit. Exploitation work has begun at many of these deposits, such as Tavan Tolgoi, Nariinsukhait, Oyu Tolgoi, Boroo, and Zaamar, and currently 400 mines are operating successfully.

Mongolia has an enormous amount of energy resources.

For example, there are 175 billion tonnes of inferred deposits of coal, 205 million tonnes of oil deposits, and 68,000 tonnes of uranium deposits. Additionally, it has been estimated that Mongolia has 56.2 billion kWh of hydropower resources, 1,200–1,400 kW/m of solar power resources, and 836.8 kWh of wind energy resources. There are about 847 billion tonnes of coal resources worldwide and the United States, Russia, and the People's Republic of China are the leading countries in the world for coal reserves, and Mongolia ranks tenth.<sup>1</sup>

According to a report of the World Coal Association, about 42% of the world's total energy was generated from coal in 2010. Despite the world community trying to rely more on renewable energy sources and making considerable efforts for their deployment, the energy share based on coal and natural gas has yet to decrease.

The scale of coal production in Mongolia was relatively stable during the period 1990–2004, supplying only the domestic market. However, it started to dramatically increase from 2004 when the country began to export coal.<sup>2</sup>

Coal deposits are distributed relatively evenly over the territory of Mongolia. However, lignite predominates in the east and forest areas of the country, while lignite and coking coal are mainly located in the central areas, and anthracite and coking coal deposits extend over the west and Gobi desert areas.<sup>3</sup> Currently, approximately 23 coal mines, located in the Western, Eastern, Central and Gobi areas, are supplying the domestic market. Domestic demand forecast up to 2025 is provided in Table 1.

## 3. Mongolian Coal Exports and Further Trends

As illustrated in Figure 1, Mongolia planned to export a total of 31.4 million tonnes of coal in 2014, and 10.6

Table 1: Domestic Coal Demand Assumptions to 2025 (1,000 tonnes/year)<sup>4</sup>

Year	Case 1	Case 1.5: 2.5%	Case 2	Reference		MRAM* Data
				2005–2011	Growth Rate: 4.9%	
2011	6,815	6,815	6,815			
2012	7,000	7,000	7,200			
2015	7,500	7,800	8,300	8,000	8,600	13,700
2020	8,600	9,100	10,900	9,300	11,600	15,700
2025	9,600	10,700	14,400	10,800	15,600	18,100

Note: \*Mineral Resources Authority of Mongolia

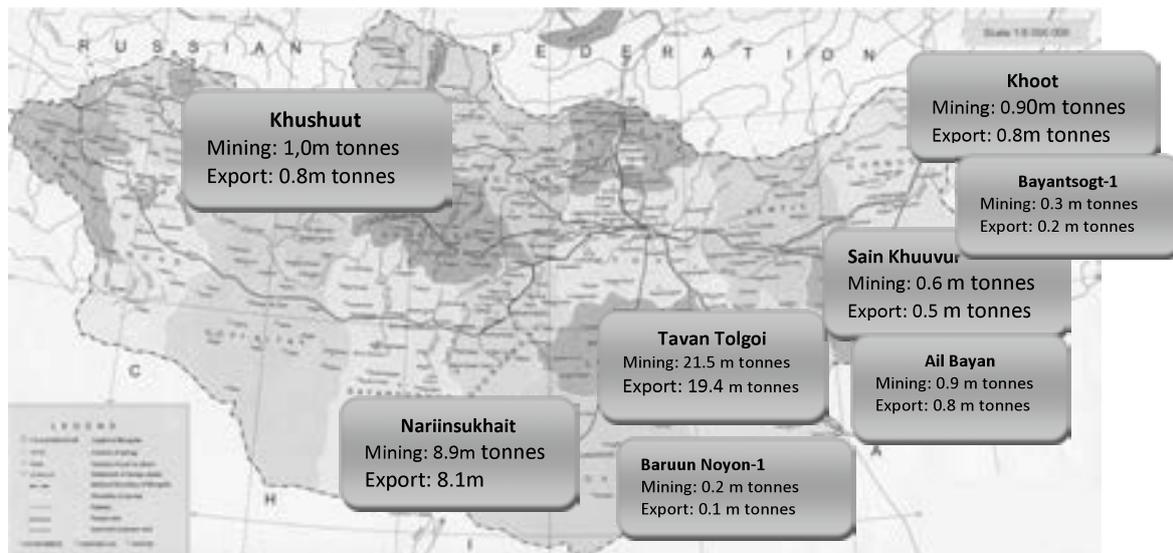
<sup>1</sup> A More Sustainable and Equitable Approach to Sharing Mongolian Wealth, 2013

<http://www.worldbank.org/mn/news/opinion/2013/10/10/more-sustainable-structural-equitable-approach-to-sharing-mongolia-wealth>.

<sup>2</sup> B. Batzaya, "The New Railway Infrastructure Project", Discover Mongolia.

<sup>3</sup> "Current Situation of the Coal Industry in Mongolia", December 2012.

<sup>4</sup> Mongolian Mining Journal, 2014.04.

**Figure 1: Mongolian Coal Exports in 2014**

million tonnes of coal were exported during the first seven months of 2014. Of the total coking coal exports, 59.75% and 36.28%, respectively, were transported via Gashuunsukhait and Shiveekhuren; thus the majority, or 96%, of the total coal exports were shipped via these two places.<sup>5</sup>

It has been estimated that China's coal imports would increase until 2015 due to the country's economic growth, and the total volume of concentrated and cleaned coal would not exceed 40–50 million tonnes per year. Thus, if more coal mines are to be put into operation in Mongolia, there will be an excess supply of Mongolian coal to the Chinese market. Therefore, it is necessary to cooperate with "Third Neighbor" countries to export and utilize this surplus coal.

As Mongolian coal resources are distributed over the country's entire territory, there is a need and potentiality for exporting coal to third countries, and not only to China, as Mongolia currently does. However, the price of Mongolia's coal is one of the issues encountered in the supply chain of energy commodities in the region, despite Mongolia having abundant resources for export and the importing countries having a huge demand for them. Mongolia's ex-factory price is estimated to be US\$25 per tonne of coking coal, while it costs US\$59–92<sup>6</sup> a tonne to deliver it to Tianjin port. The cost of shipping coal to a port in Russia would be US\$125 per tonne.<sup>7</sup>

A test shipment of coal to Japan was carried out by Sumitomo Corporation and they indicated that it would be possible for Mongolia to export coal to third countries if the

prices ranged between US\$125 and US\$150 per tonne of thermal coal, and between US\$200 and US\$250 per tonne of coking coal on the international markets. To date, Mongolia has not exported any coal to Japan, except for this test shipment made by the Sumitomo Corporation.

As of the first half of 2014, the price of steam coal imported by Japan was US\$114.1, and the price of coking coal was US\$136.56,<sup>8</sup> and Russia and Australia were the main exporters of coal to Japan. Thus it is not profitable for Mongolia to export coal to Japan at present. Currently, Mongolia exports coal only to the Chinese market, which makes Mongolia's coal exports extremely dependent on the demand fluctuations in China. Therefore, in anticipation of the coal price increasing on international markets, Mongolia needs to consider exporting coal to third markets, such as Japan, and expanding cooperative activities.

#### 4. Prospects for Energy Sector Cooperation between Mongolia and Japan

It has been more than 40 years since Mongolia and Japan established diplomatic relations and the bilateral cooperation between the countries has developed to a strategic partnership level. At high-level summits between the two countries, discussions on intensifying Japan's participation in the Mongolian mining industry have been held a number of times. Amongst others, discussions were held during the summit between Yoshihiko Noda, Prime Minister of Japan, and the President of Mongolia, held on 25 September 2012, on concluding an Economic Partnership Agreement (EPA)<sup>9</sup> between the two countries

<sup>5</sup> "The Current Situation of Mongolian Coal Exports", Lkhamaasuren, August 2014.

<sup>6</sup> Inclusive of tariffs and fees.

<sup>7</sup> "Master Plan to Develop the Coal Industry 2014–2025", approved in 2013.

<sup>8</sup> BP Statistical Review of World Energy 2015

<http://www.bp.com/en/global/corporate/about-bp/energy-economics/statistical-review-of-world-energy/review-by-energy-type/coal/coal-prices.html>.

<sup>9</sup> Within the framework of a "strategic partnership" between Mongolia and Japan, the two parties agreed to conclude an Economic Partnership Agreement (EPA) between Mongolia and Japan in 2010. Thus they signed an agreement between Mongolia and Japan on 10 February 2015. According to Parliament the agreement entered into force in May 2015.

and the participation of Japanese enterprises in Mongolia’s mining industry.<sup>10</sup> In 2010, Mongolia and Japan concluded a “Strategic Partnership Agreement” bringing the two countries’ cooperation to a new level. Thereafter, the political and economic relations between the two countries have improved further and high-level summits have come to be held frequently.

After seven negotiating rounds, Mongolia and Japan signed the EPA<sup>11</sup> in February 2015. For Mongolia it is important to increase trade and economic relations with Japan in order to diversify its export markets and reduce the risks associated with the over-dependency on one market for the country’s major export commodities. Within the framework of the “Third Neighbor” policy, Mongolia has been expressing its wish to support Japanese participation in the country’s mining industry.

### Transportation Issues

It is a reality, however, that Japan’s participation in Mongolia’s mining sector is still very limited. One of the major hurdles for Japanese companies’ involvement in Mongolia’s mining sector is the transportation issue. About 90% of Mongolia’s exports are of mineral-origin products only, while only 4% of Japan’s total imports are minerals.

Mongolia exports coal by road and rail via a few major terminals. Currently Mongolia’s road and railway networks are underdeveloped, but the country is working to increase paved roads and to build improved regional road networks within the framework of its road development plan for the period 2011–2030. According to the Road Department, construction of major road networks within the country will be completed by 2020.

Aiming at increasing the capacity of coal transportation and reducing transport costs, Mongolia is planning to implement several measures, including:

- A decision was made at the Cabinet meeting on 21 March 2014, to establish the “Gashuunsukhait Railway” LLC in order to intensify work to construct a railway network, and the “Gashuunsukhait Railway Company”, a joint venture between the Mongolian Erdenes Tavan Tolgoi JSC, Energy Resources LLC, Tavan Tolgoi JSC, and China’s Shenhua Group, which was established in April 2014.
- A proposal to construct at the border point of Shiveekhuren a belt conveyer linking to the Chinese railway at the border<sup>12</sup> was discussed at the Cabinet

meeting on 18 January 2014 and a working group to study this proposal was established in February 2014.

According to a study by the World Bank on a comparison of the economic efficiency of Mongolian railways and highways, it is more efficient to transport coal by railway than by road, with the assumption that the annual amount of coal to be transported would be more than 2–4 million tonnes. The construction costs of railways and roads, however, were important factors in this result.

According to the Rail Plan approved by the State Great Khural (the Parliament of Mongolia) in June 2010, the Mongolian Railway Company will construct 1,800 km of railways in three phases. The highest priority routes were planned to be built during the first and second phases, and some urgently needed routes were planned to be completed by 2015. It was planned to construct railway routes identified in the first and second phases in a B.O.T. or a Build-Operate-and-Transfer arrangement, but this was canceled in November 2012, and it was decided to build them by conventional funding procedures.

Furthermore, it would be in compliance with Mongolia’s “Third Neighbor” policy if Mongolia were to diversify its export markets for coal and other natural resources, not only to China, but also to the ROK, Japan and Europe, within the rail network concept of the “Greater Tumen Initiative (GTI)”.<sup>13</sup> Creation of new trans-border transportation networks is of vital importance to strengthen energy cooperation and trade between Mongolia and Japan. As indicated in a GTI study, projects that restore some parts of the old railways will encourage intensification of the local economy of Rason and intensify cooperation between the DPRK and Russia, along with expanding bilateral economic relations between the Northeastern area of China and the DPRK, and Mongolia and the DPRK.<sup>14</sup>

### Opportunities for Technological Cooperation

Notwithstanding the current limited trade and various barriers to trade expansion, there is an opportunity to strengthen technological cooperation between Mongolia and Japan in the energy field. As illustrated in Figure 1, the major coal deposits are located in the Central and Gobi Desert areas of Mongolia. Coal beneficiation by the gravitation method<sup>15</sup> needs a huge amount of water. Depending on the location, the possibility of using underground water resources for coal mines varies by mine.<sup>16</sup>

<sup>10</sup> 1. “Japan–Mongolia Summit Meeting”, 25 September 2012

[http://www.mofa.go.jp/region/asia-paci/mongolia/meeting1209\\_pm.html](http://www.mofa.go.jp/region/asia-paci/mongolia/meeting1209_pm.html).

2. Mr. Katsuhito Asano, Senior Vice-Minister for Foreign Affairs, to Visit Mongolia [http://www.mofa.go.jp/announce/event/2007/4/1173178\\_846.html](http://www.mofa.go.jp/announce/event/2007/4/1173178_846.html).

<sup>11</sup> Economic Partnership Agreement.

<sup>12</sup> By introducing low cost transportation technologies, such as railways and belt conveyers, transport capacity will be increased, while reducing transportation cost; thus improving the competitiveness of Mongolia’s coal exports.

<sup>13</sup> “How Expanding Trans-Border Transportation Networks Will Impact South Korean–Mongolian Energy Cooperation: Using the Greater Tumen Initiative to Realize the Eurasia Initiative”, Dr. Alicia Campi, January 2014.

<sup>14</sup> Dr. Alicia Campi, January 2014, p. 5.

<sup>15</sup> The main principle of this method is to clean and concentrate coal from rocks and mud by their density variance and by centrifugal or gravitational forces. The gravitation concentration method is the main technology for wet processing of coal and it is expected to be the predominant technology for the foreseeable future. However, this method requires a large amount of water, so in areas with scarce water a dry concentration method is used.

<sup>16</sup> Mineral Resource Department, “Coal Concentrating Technology”

[http://www.mram.gov.mn/index.php?option=com\\_content&view=article&id=30%3A2011-03-24-10-11-04&catid=18%3Anews&Itemid=37&lang=mn](http://www.mram.gov.mn/index.php?option=com_content&view=article&id=30%3A2011-03-24-10-11-04&catid=18%3Anews&Itemid=37&lang=mn).

Based on its research on the deep processing of coal, Japan developed a project to introduce coal concentration technology by a “dry method” at Mongolia’s Tavan Tolgoi coal deposits. A Memorandum of Understanding (MOU) on implementation of this project was signed between Mongolia’s Erdenes Tavan Tolgoi LLC, the Japan Coal Energy Center, and Nagata Engineering Co., Ltd., of Japan.<sup>17</sup> It is planned to process 50,000 tonnes of coal per annum at Tavan Tolgoi coal mine. Concentrating coal by the dry method is an appropriate technology to be used in areas with scarce water and protects the environment.

Moreover, Mongolia and Japan signed agreements on implementing a Joint Crediting Mechanism (JCM) and a Bilateral Offset Credit Mechanism (BOCM) between the two countries, aiming at reducing CO<sub>2</sub> emissions and trading CER (Certified Emission Reduction) credits. Usage of such mechanisms for introducing new technologies in Mongolia would be useful to control and reduce coal consumption in the country.

## 5. Conclusion

Mongolia can offer various cooperation opportunities to Northeast Asia such as: abundant natural resources; a

market-oriented free trade and economic environment; an open and democratic political regime; a stable legal environment; a geographically advantageous location; secure transport; and stable and competitive commodity prices. As the Northeast Asian region is home to major energy commodity importers, such as China, Japan and the ROK, there is huge opportunity to intensify exploitation of Mongolia’s natural resources and develop the energy industries further. Therefore, Mongolia needs to develop close cooperation with these countries.

Although Mongolia has an enormous amount of coal, natural gas, oil, copper, gold and uranium resources, Mongolia’s exports are particularly dependent on China, due to Mongolia’s weakly developed transportation and infrastructure along its Northeastern border. It would be in line with Mongolia’s foreign policy and national security concepts if Mongolia were to secure new consumers of its natural resources, such as Japan and the ROK, within the framework of its “Third Neighbor” policy. In addition, trade and technological cooperation in the energy sector is one spur to push forward implementation of the Mongolia–Japan EPA.

# モ日経済連携協定（EPA）枠内における エネルギー協力の可能性

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## （要旨）

北東アジア地域の政策的・安全保障的状况により、経済の多国間メカニズムと北東アジアの統合過程は、東南アジアなどその他の地域に比べて遅れている。しかし、この地域には、膨大な天然・エネルギー資源がある一方で、それらの資源を利用する強大な国・地域を持つという点では、大きな協力の可能性を秘めている。その1つの例が、モンゴルと日本のエネルギー協力である。本稿では、モ日エネルギー協力について、特に石炭産業における景気循環の協力の機会について述べたい。

両国が外交関係を築いて40年余りとなり、その間に両国の関係と協力は、戦略的パートナーシップに発展した。モンゴルの鉱工業に対する日本の関与については、両国首脳会議で何度か話し合われている。「第三の隣国」政策の枠組みの中で、モンゴルは国内鉱工業に対する日本の参加を支援する意思を表明している。しかし、実際には、モンゴルの鉱工業に対する日本の参加と両国のエネルギー協力は、まだ極めて限定的である。

モンゴルは、経済成長の途上にあり、膨大な石炭、天然ガス、石油、銅、金、ウラン資源を所有してはいるものの、北東国境沿いの輸送・インフラ状態が未整備なために、とりわけ中国への依存が大きい。モンゴルの天然資源に対し、日本や韓国など「第三の隣国政策」の枠組みの中で新しい消費者が現れれば、モ日EPAの実施は、さらに推し進められよう。

[英語原稿をERINAにて翻訳]

<sup>17</sup> Tavan Tolgoi LLC, “Introducing Environmentally Friendly Technology”  
<http://www.tavantolgoi.mn/news/57#.Ve6Z5NKqpBc>.